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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/373,837

08/13/1999

METIN AYDEMIR

RA999-005

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01/06/2005

DILLON & YUDELL LLP  
8911 N. CAPITAL OF TEXAS HWY.,  
SUITE 2110  
AUSTIN, TX 78759

EXAMINER

VOLPER, THOMAS E

ART UNIT

PAPER NUMBER

2665

DATE MAILED: 01/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/373,837

Applicant(s)

AYDEMIR ET AL.

Examiner

Thomas Volper

Art Unit

2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 1, 13 and 24 have been considered but are moot in view of the new ground(s) of rejection. The Examiner has made a 35 USC 103 rejection based solely on Fichou et al., which upon further consideration it was determined that Fichou et al. did in fact meet the limitations that the Applicants' have argued Diaz et al. did not meet. Specifically, Fichou et al. meets the limitation of "computing a delay interval based upon said input buffer occupancy" in view of certain obvious improvements as described below.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fichou et al. (US 5,790,522).

Regarding claims 1 and 13, Fichou discloses a method for congestion control within a switch having at least one input section that includes an input buffer (receive adapters with buffers 42, shown in Figure 4). The data is transmitted from the input section to an output section through a switching fabric (col. 6, lines 13-31 and Figure 4) and data transmission is paused when congestion is detected within the switching fabric or output section. Each adapter

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switch defines a period of time for pausing transmission (col. 8, lines 2-8). This period of time is chosen to be long enough so that premature transmission from an input queue does not cause congestion again in the switch fabric. The time period is also chosen to be short enough so that data is not held for excessive periods in an input queue (col. 8, lines 18-25). It is clear that if data is held for too long in an input queue, eventually cell loss will result at the input side of the switch. Furthermore, the invention monitors the switch input queue sizes so as to compare them to certain thresholds (col. 9, lines 53-58). Fichou does not expressly disclose that the time period is computed based on the monitored input queue sizes. However, at the time the invention was made, it would have been obvious to use the input queue size to determine the timer period. One of ordinary skill in the art would have been motivated to use the queue size because it indicates how close a queue is to its maximum capacity, which would be needed in determining how long the system can delay restart before resulting in cell loss at the input.

Regarding claims 2 and 14, Fichou further teaches that the data switch contains an output buffer (queue) and a backpressure signal generator within the switch fabric used when switch congestion is detected (col. 5, lines 15-20 and 30-32).

Regarding claims 3 and 15, Fichou further teaches that a backpressure signal indicates the existence of congestion conditions (col. 8, lines 26-27).

Regarding claims 4 and 16, Fichou further discloses that data transmission is paused when a backpressure signal is received, meaning congestion is detected (col. 8, lines 2-6).

Regarding claims 5 and 17, Fichou further teaches that in practice, congestion is detected when the output queue is full, meaning a high level of occupancy (col. 5, lines 15-18).

Regarding claims 6 and 18, Fichou further discloses that in practice, the output buffer is monitored and when congestion is detected, a congestion indication signal is generated (backpressure) and delivered to input section, which pauses data transmission (col. 5, lines 15-18).

Regarding claims 8, 9, 11, 20, 21 and 23, Fichou discloses spacing of cells for transmission to the switch fabric based on the fullness of input queues (col. 9, lines 51-63). Figure 7 shows two threshold levels, and Figure 8 demonstrates that more thresholds may be used, for example four threshold levels. Each threshold level corresponds to a different spacing between cells for transmission (col. 10, lines 37-50). As the queue becomes more full, the spacing becomes smaller until the queue reaches its fullest threshold, in which case the spacing is zero. This represents an inverse relationship between queue size and spacing between cells. Fichou does not expressly disclose using this threshold and spacing system in response to the backpressure signal resulting from congestion. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a plurality of queue thresholds to determining the timer period between sending cells in response to the backpressure signal. One of ordinary skill in the art would have been motivated to do this to provide an efficient way to prevent cell loss at an input queue, while leaving enough time for congestion in the switch to clear up.

Regarding claims 10 and 22, Fichou discloses a plurality of input buffers (see Figure 4).

Regarding claims 12 and 24, Fichou discloses a manager module (43), which represents the intelligent control device of the present invention.

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4. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fichou et al. (US 5,790,522) as applied to claims 1-24 above, and further in view of Ljungberg et al. (US 5,493,566).

Regarding claim 25, Fichou et al. in view of the obvious improvements described above meets all of the limitations of claim 25, except that the restart of data transmission from the input section to the output section is delayed without regard to a data priority. Ljungberg et al. discloses a flow control system for packet switches that throttles traffic coming from input buffers in response to output buffers reaching a threshold value without regard for priority (see Abstract and Figure 5). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to perform the function of delaying data transmission from the input queues of Fichou in accordance with the defined timer values without regard for priority. One of ordinary skill in the art would have been motivated to do this to prevent all cell loss, rather than trying to save higher priority cells by possibly discarding lower priority cells.

### *Conclusion*

5. Any inquiry concerning this communication, or earlier communications from the examiner should be directed to Thomas Volper whose telephone number is 703-305-8405 and fax number is 703-746-9467. The examiner can normally be reached between 8:30am and 6:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached at 703-308-6602. Any inquiry of a general nature or relating

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to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

Thomas E. Volper



February 3, 2004